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AUTHOR Killian, Joyce E.
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ABSTRACT

The results of a 1982 survey indicated that teachers seeking computer literacy were just as unlikely to have had computer experience as were teachers in general, and were even less likely to feel knowledgeable about computers, but were much more likely to come from districts where computer use by teachers received broad institutional support. This evidence suggests that supportive school environments promote teacher interest in learning about and using computers and further suggests that such environments should be developed. A nurturing climate can be enhanced if inservice programs are made available for top administrators first, if caution is used in selecting inservice programs, if adequate financial and resource support is provided for computer-oriented programs, and if information is made available and communication encouraged. (PGD)

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FOSTERING COMPUTER COMPETENCE IN THE SCHOOL ENVIRONMENT:*
GUIDELINES DRAWN FROM RESEARCH

Paper presented at the 1984 meeting of the
National Council of States on Inservice Education
November 16-20, 1984

Joyce E. Killian
Assistant Professor of
Curriculum, Instruction & Media
Southern Illinois University
Carbondale, Illinois 62901

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FOSTERING COMPUTER COMPETENCE IN THE SCHOOL ENVIRONMENT

A conducive environment plays a major role in encouraging teachers to update technological skills. Recent research indicates that school districts can promote computer competence by providing internal sources of equipment, expertise and networking support.

A comparison of "average" teachers with computer literacy "seekers" indicates that certain interests, attitudes and sources of encouragement characterize those who seek to become computer literate. The basis for the comparison was a survey designed by the National Education Association to assess teachers' knowledge and opinions about computer-related topics (Norman, 1983). "Average" teachers were the 1700 randomly selected teachers who participated in the original NEA survey in the spring of 1982; computer literacy "seekers" were the 61 teachers who completed the survey in a computer literacy graduate course during the summer or fall of 1983 (Killian, 1984). Because many of the conditions associated with voluntary technological growth can be controlled or provided in the schools, consideration of the differences in their responses provides some insight for staff developers.

Knowledge and Skills

How do "average" teachers differ from computer literacy "seekers" in terms of their computer knowledge and skills? A reasonable expectation might be that those who have some prior training or experience with computers would be more likely to sign up for a computer literacy course. This was not the case for subjects in this study. "Average" teachers and "seekers" were quite similar in reporting a lack of a computer background.

Seventy-nine percent of the NEA respondents classified themselves as "not trained" about computers, while 84% of workshop participants initially put themselves in this category. Both groups rated themselves low in knowledge about all computer subjects, and "seekers" were even lower than "average" respondents on several self-estimates. Whether their perception of ignorance is accurate or not, it seems that feeling "illiterate" is often linked to self-improvement efforts. Helping teachers to analyze the extent of their knowledge about computers would seem to be a good place to start staff development planning.

Computer Interests

How do the two groups compare in their computer interests? Predictably, computer "seekers" reported a significantly higher interest in many subjects and uses for the computer than their "average" counterparts did. Some background information provides insight about their responses: though most of the "seekers" reported no computer training, the majority of them came from school districts which had recently included some computer orientation in an inservice program. As a result, these teachers had at least an acquaintance with specialized terms and were thus able to identify as interests such areas as word processing, data management, and simulations. It seems plausible that teachers need to know a little about computers before they can identify what they want, and that brief, practical school or district-wide orientations to computers put teachers in a better position to articulate their needs and interests.

Beliefs and Attitudes

How do the two groups differ in their beliefs and attitudes about computers? When asked to rate the likelihood of certain events occurring by the year 1990, "seekers" were more positive about their perception of how computers would influence schools and teaching in general, and their own careers. This latter group was more likely to project computers as "common" or "basic" in teaching and teacher education and even linked computers to innovative teaching; they were less likely to project that teachers will be "replaced" or "obsolescent" as a result of computers. To what extent these positive attitudes were the products of individual dispositions or the result of the way that the introduction of computers had been handled in their respective school districts remains unanswered. It would seem safe to assume that computer beliefs and attitudes are substantially affected by the school district environment, and reasonable to use school district resources to promote positive attitudes toward computers whenever possible. Keeping classroom teachers actively involved in planning and making decisions about computer policies, acquisitions, and allocations may go a long way in alleviating fears about jobs being lost to computers and in promoting voluntary participation in computer projects.

Sources of Encouragement

What motivates or encourages teachers to initiate programs of computer literacy? When asked about the sources which had encouraged them to use computers with students, "seekers" were more likely than "average" teachers to designate students, teaching colleagues, principals, curriculum specialists, superintendents, and school board, as well as family and friends. Noteworthy about this list is that all but the last source exists within the school

environment. Evidently, a wide range of people within the schools are sparks for interest in computers and have potential as resource support. The practical implication for staff developers is that educational leaders as well as classroom teachers will have to update their technological skills if computer literacy is to become "contagious."

Guidelines for Staff Development

If we accept the evidence that teachers who seek computer literacy are often those who come from supportive school environments, an obvious course of action is to set about providing such an environment for all teachers. Guidelines that would help educational leaders to provide a nurturing climate include the following:

Start Inservice at the Top. Administrators and supervisors from the school board on down to the building level are more likely to promote effective use of computers if they are themselves knowledgeable, competent, and comfortable with computer subjects. Sources for their education range from regular reading of educational periodicals specializing in computers to college courses and topic-focused workshops offered by professional organizations.

"Caveat Emptor" Applies to Selection of Inservice. Caution should prevail in decisions about computer education for administrators and district-wide orientations. Teachers ascribe most interest to inservice which can be translated into more efficient or effective classroom practice. Many of the current computer education programs available through vendors and continuing education programs focus on teaching skills in one programming language or on promoting a specific software program. Such courses do not approach the desirable level of classroom applicability described in the criteria for

selecting inservice available from the publications of numerous educational associations [See suggested reading].

Back Up Good Intentions With Concrete Support. Inservice programs are only the beginning of long-range integration of computers into the curriculum. More likely to make the difference in the long haul is day-to-day financial and resource support for teachers who seek to update their computer skills. Such support must come in many forms, including ample hardware and software availability, released time or pay for computer responsibilities, access to resource personnel, and compensation for coursework and curriculum development.

Help To Make Good Ideas Contagious. The enthusiasm of those who are "discovering" computers can easily spill over onto the rest of the faculty if the opportunity exists. More than one convert has been made by the teacher who insists on demonstrating how easy life can be with Grade Book or Bank Street Writer; concerted efforts to capitalize on this proselytizing can pay off. Networking of ideas, resources and equipment among and within schools should be given moral and financial support. Equipment, software and related periodicals should be as central and visible as security considerations will allow. Teachers are not likely to experiment with programs that are kept in the principal's office or are available for five minutes at an inservice program. But when the faculty can learn at leisure and make their first awkward mistakes without large-group attention, they are likely to overcome the hurdles of new programs and integrate them into their teaching.

Conclusion

For the past several years educators have scarcely been warned that ignorance of technology will not only relegate their students to mediocre jobs, but will eventually cost many of them their positions as well. The computer literacy movement has been intimidating for both teachers and staff developers.

As educators have become more active consumers and critics of computer software, however, they have become more selective about the claims to which they give credibility. Just as we have begun to realize that drill and practice programs will not significantly change the role of the teacher, educational leaders need to recognize that the challenges of staff development for computer competence are not so very different from the challenges we have faced in the past. The same principles that have traditionally guided effective change efforts will work with this effort as well. It would seem that here, as in lessons of the past, success will lie in cooperative, gradual, practical efforts within the school environment.

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